

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3161312****Date:07-12-2023****Subject Name:Global Warming and Climate Change****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define the following terms: **03**
 1. Global Warming Potential 2. Carbon Flux 3. Residence Time
- (b) Differentiate between weather and climate. **04**
- (c) Water vapor and Carbon dioxide will act as significant Greenhouse Gases. – **07**
 Justify the statement.
- Q.2** (a) State and derive the Stephan Boltzman law. **03**
 (b) Differentiate between Natural and Enhanced Green House Effect. **04**
 (c) Discuss the anthropogenic sources of Greenhouse Gases. **07**
- OR**
- (c) Discuss the Climate Change Impacts in detail. **07**
- Q.3** (a) Explain the Global Wind Circulation for Hadley Cell. **03**
 (b) Discuss the Green House effect in detail. **04**
 (c) Describe the Global Carbon cycle in detail. **07**
- OR**
- Q.3** (a) Explain the Global Wind Circulation for Polar Cell. **03**
 (b) Discuss the factors affecting ocean current in detail. **04**
 (c) Discuss the role of Ocean on Climate Change. **07**
- Q.4** (a) Explain the application of Climate Modelling. **03**
 (b) Enlist and explain any TWO Climate element in detail. **04**
 (c) Enlist and explain options to mitigate the Climate Change in detail. **07**
- OR**
- Q.4** (a) Explain the Global Circulation Model (GCM). **03**
 (b) Differentiate between Carbon Capture and Storage (CCS) and Carbon Capture and Utilization (CCU). **04**
 (c) Enlist and explain configuration of CO₂ Capture and Storage for use in electricity generation with schematic block diagram. **07**
- Q.5** (a) Explain the term Sustainable Development. **03**
 (b) Discuss the role of UNFCCC and WMO. **04**
 (c) Discuss the significance of Kyoto Protocol in detail. **07**
- OR**
- Q.5** (a) Define the term IPCC. **03**
 (b) Explain the Concept of Clean Development Mechanisms (CDM). **04**
 (c) Discuss the National Climate Action Plan in detail. **07**
